Fig. 1

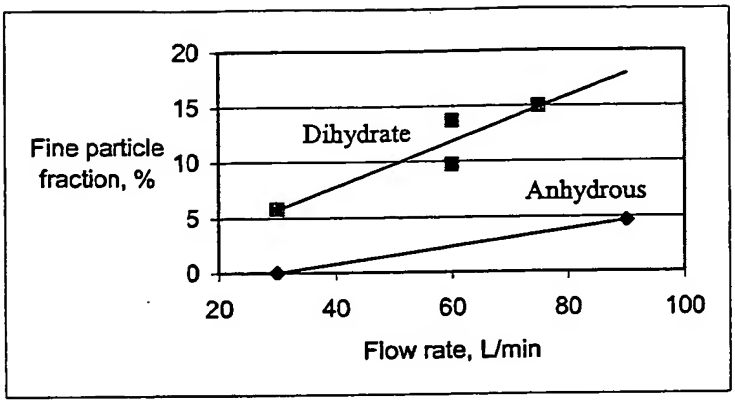

20
15
10
5
0
Fine particle fraction, %
Dihydrate
Anhydrous
20
40
60
80
100
Flow rate, L/min

Fig. 2

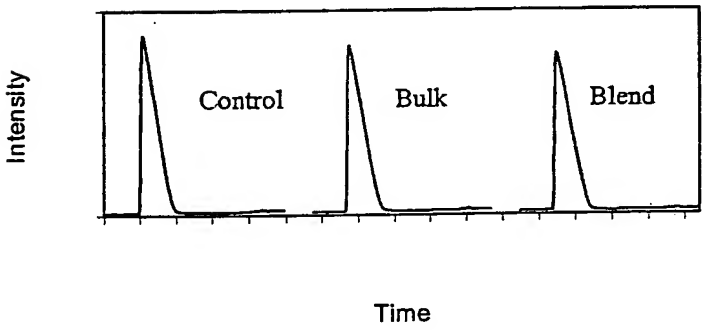

Intensity
Control
Bulk
Blend
Time

Fig. 3

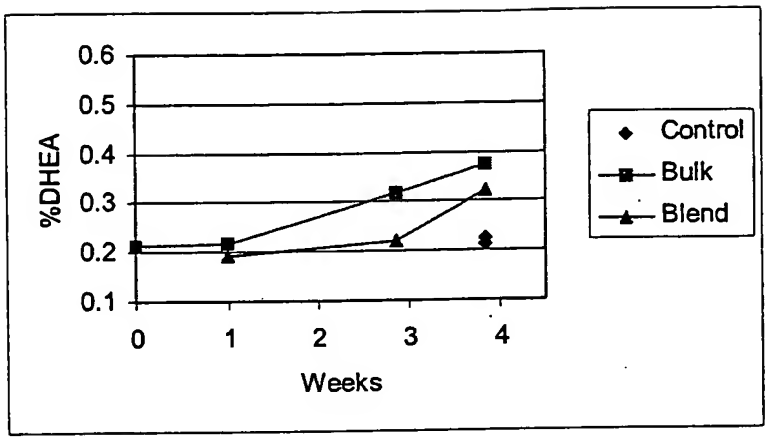

0.6
0.5
0.4
0.3
0.2
0.1
%DHEA
0
1
2
3
4
Weeks
Control
Bulk
Blend

Fig. 4

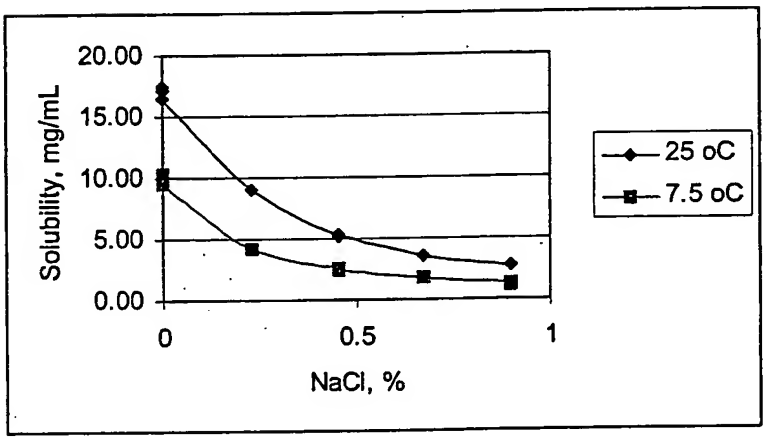

20.00
15.00
10.00
5.00
0.00
Solubility, mg/mL
0
0.5
1
NaCl, %
25 oC
7.5 oC

Fig. 5

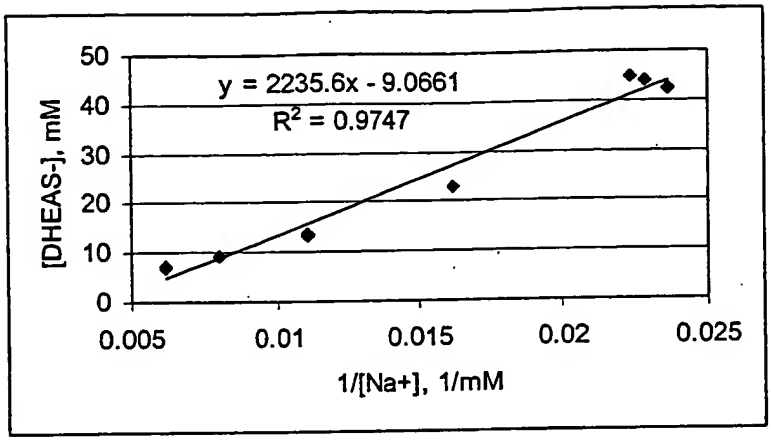

y = 2235.6x - 9.0661
R2 = 0.9747
[DHEAS-], mM
1/[Na+], 1/mM
0
10
20
30
40
50
0.005
0.01
0.015
0.02
0.025

Fig. 6

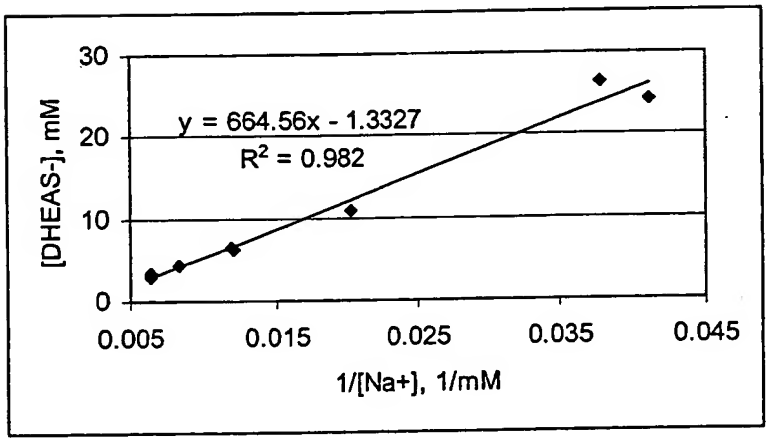

y = 664.56x - 1.3327
R2 = 0.982
[DHEAS-], mM
1/[Na+], 1/mM
0
10
20
30
0.005
0.015
0.025
0.035
0.045

Fig. 7

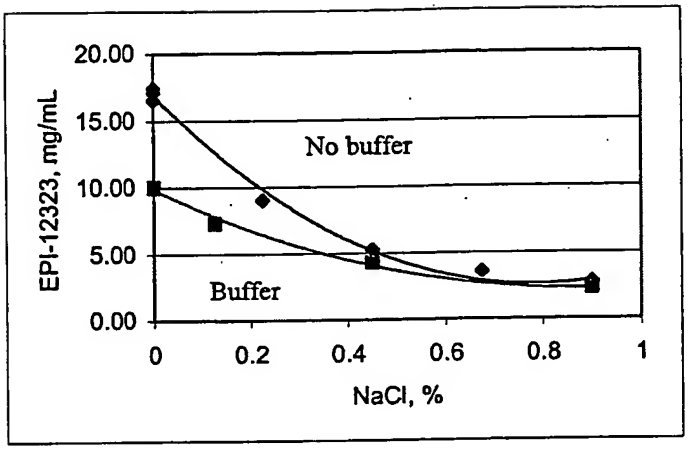

20.00
15.00
10.00
5.00
0.00
EPI-12323, mg/mL
No buffer
Buffer
0
0.2
0.4
0.6
0.8
1
NaCl, %

Fig. 8

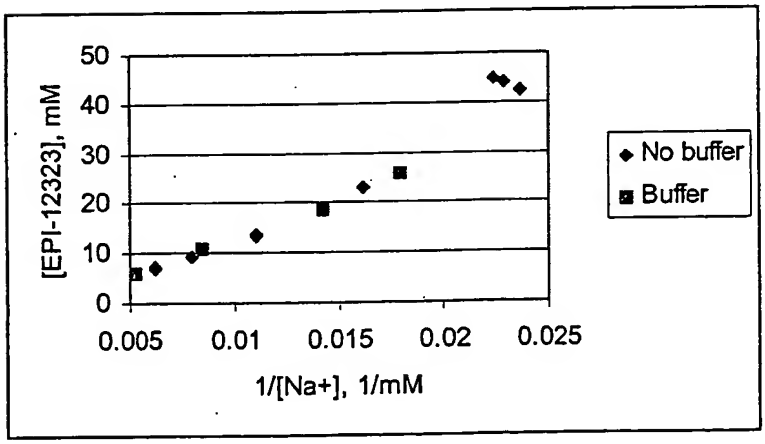

50
40
30
20
10
0
[EPI-12323], mM
0.005
0.01
0.015
0.02
0.025
1/[Na+], 1/mM
No buffer
Buffer

Fig. 9

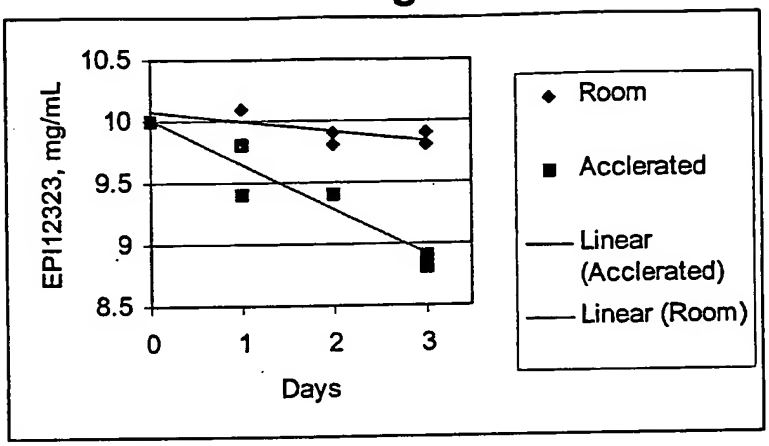

10.5
10
9.5
9
8.5
EPI12323, mg/mL
0
1
2
3
Days
Room
Acclerated
Linear (Acclerated)
Linear (Room)

Fig. 10

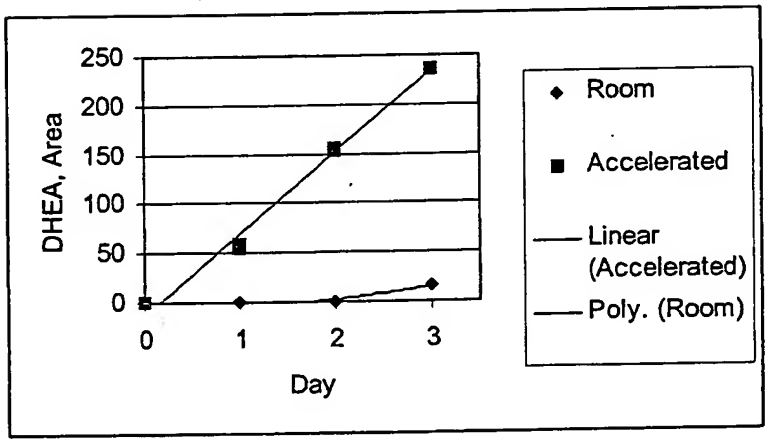

250
200
150
100
50
0
DHEA, Area
0
1
2
3
Day
Room
Accelerated
Linear (Accelerated)
Poly. (Room)

Fig. 11

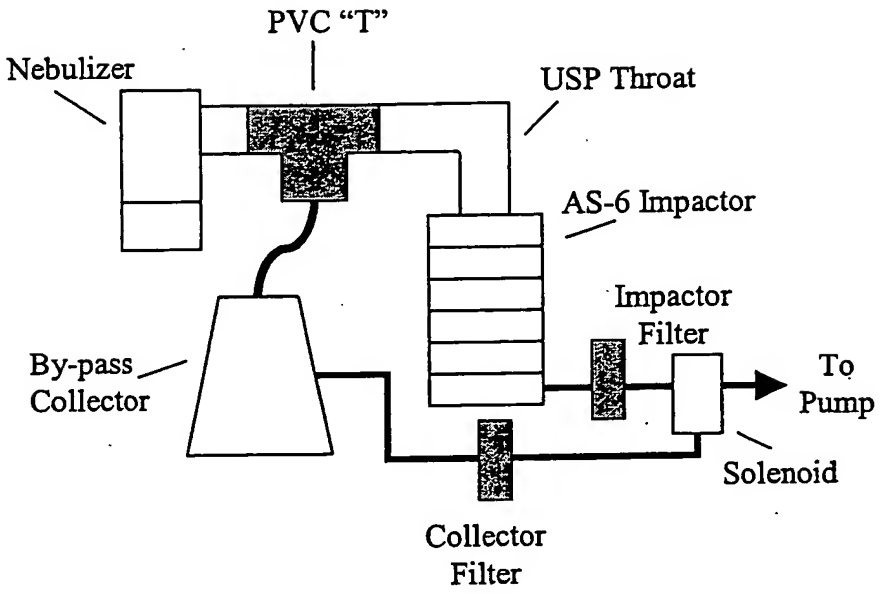

PVC "T"
Nebulizer
USP Throat
AS-6 Impactor
Impactor
Filter
By-pass
Collector
To
Pump
Solenoid
Collector
Filter

Fig. 12

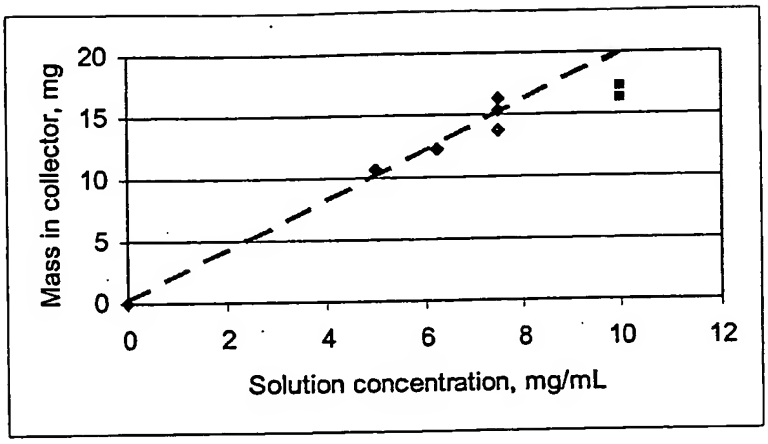

Mass in collector, mg
20
15
10
5
0
0
2
4
6
8
10
12
Solution concentration, mg/mL

Fig. 13

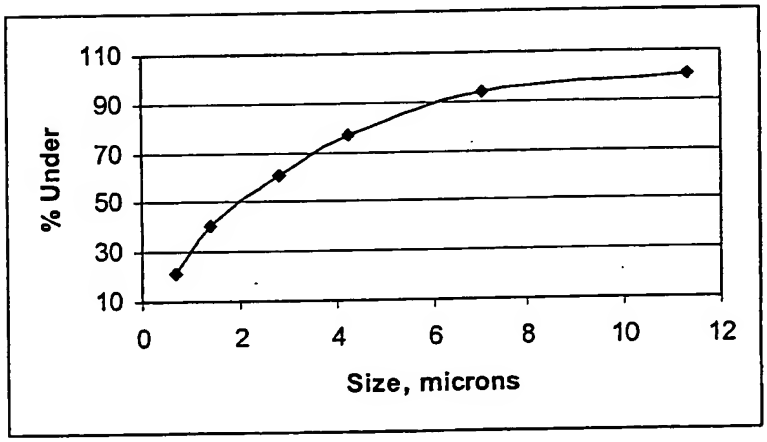

% Under
110
90
70
50
30
10
0
2
4
6
8
10
12
Size, microns

Fig. 14

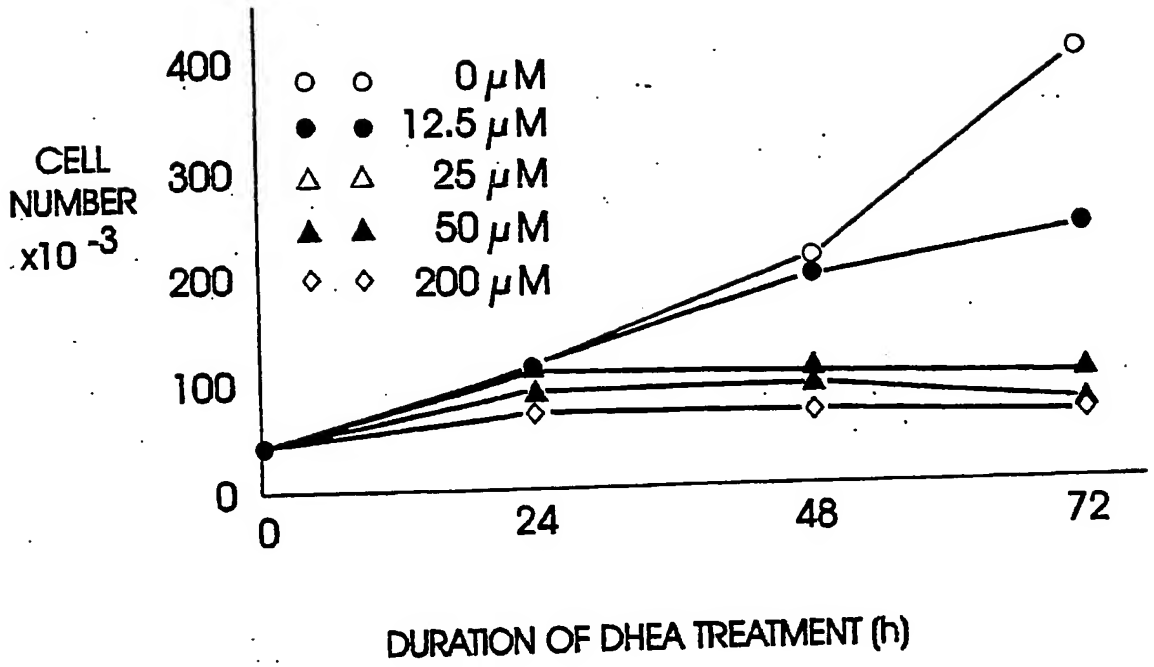

CELL NUMBER x10 -3
400
300
200
100
0
0 μM
12.5 μM
25 μM
50 μM
200 μM
0
24
48
72
DURATION OF DHEA TREATMENT (h)

Fig. 15A

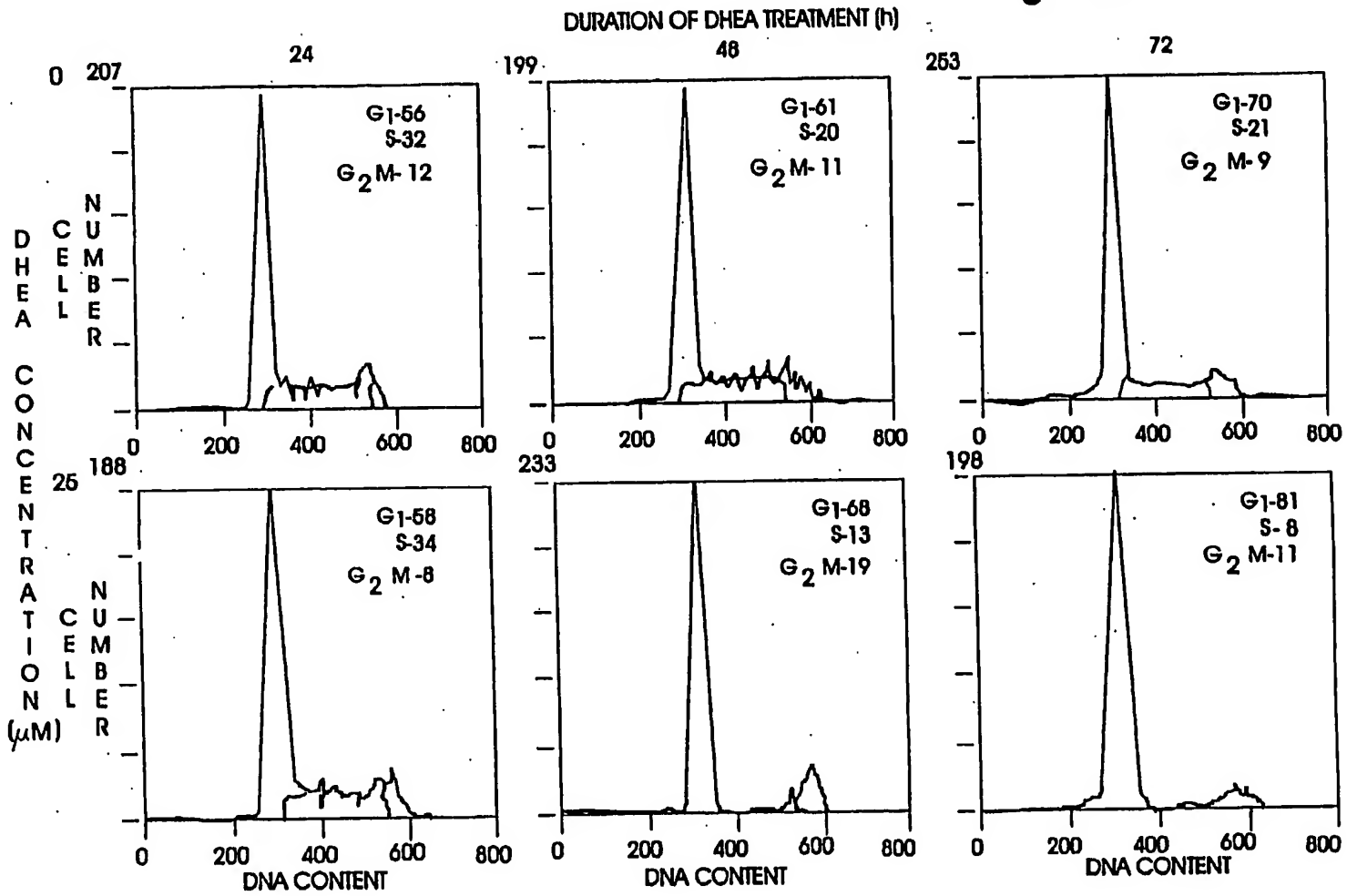

DURATION OF DHEA TREATMENT (h)
24
48
72
DHEA CONCENTRATION (μM)
0
25
CELL NUMBER
207
199
253
188
233
198
G1-56
S-32
G2M-12
G1-61
S-20
G2M-11
G1-70
S-21
G2 M-9
G1-58
S-34
G2 M-8
G1-68
S-13
G2 M-19
G1-81
S-8
G2 M-11
0
200
400
600
800
DNA CONTENT

Fig. 15B

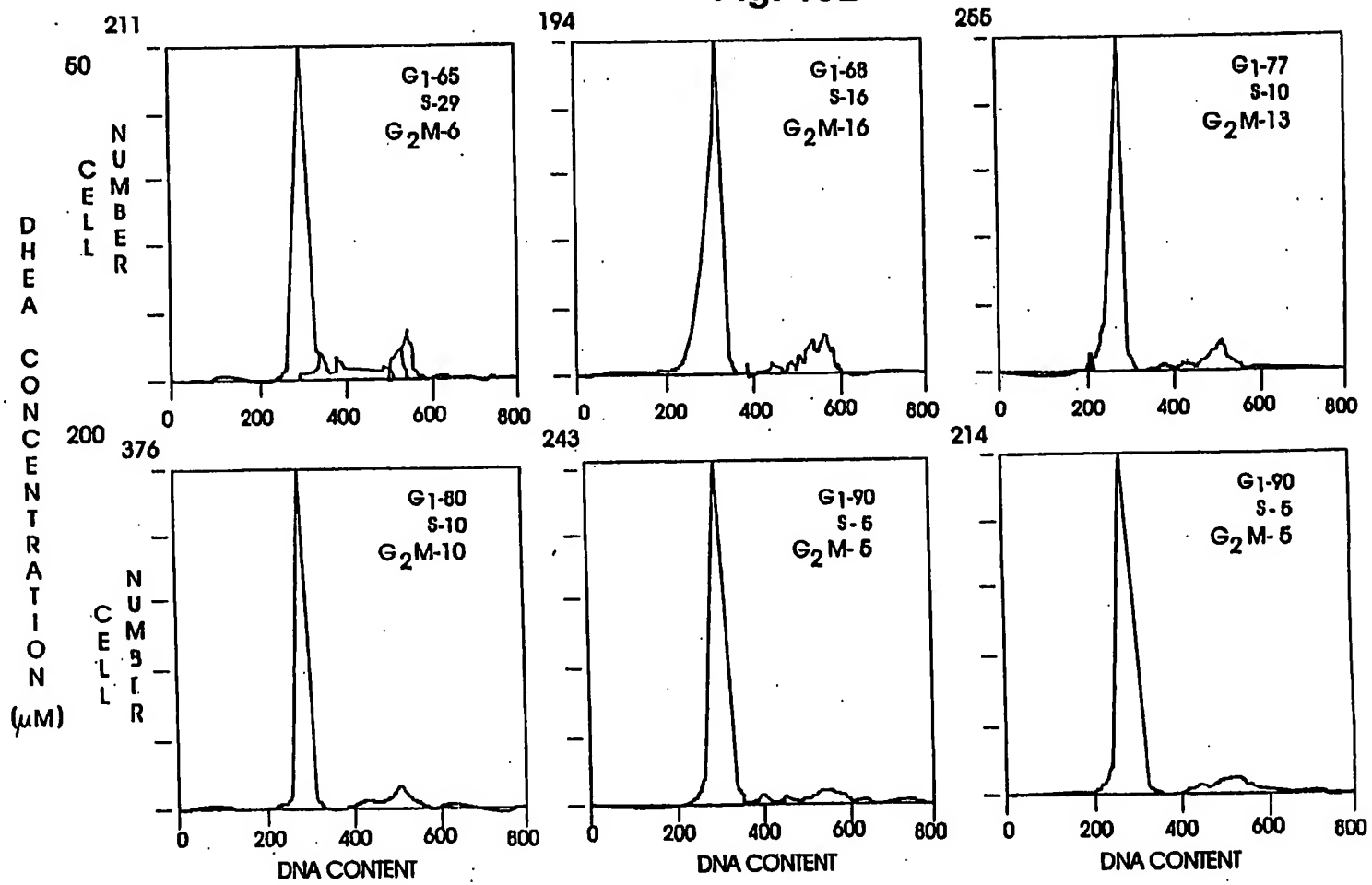

DHEA CONCENTRATION (μM)
50
200
CELL NUMBER
211
G1-65
S-29
G2M-6
194
G1-68
S-16
G2M-16
255
G1-77
S-10
G2M-13
376
G1-80
S-10
G2M-10
243
G1-90
S-5
G2M-5
214
G1-90
S-5
G2M-5
0
200
400
600
800
DNA CONTENT

Fig. 16A

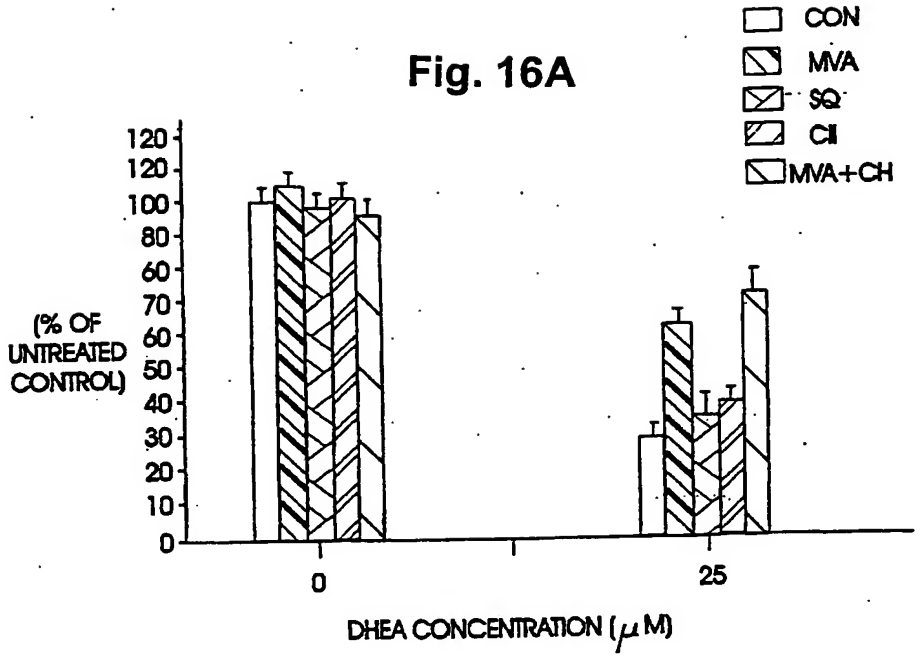
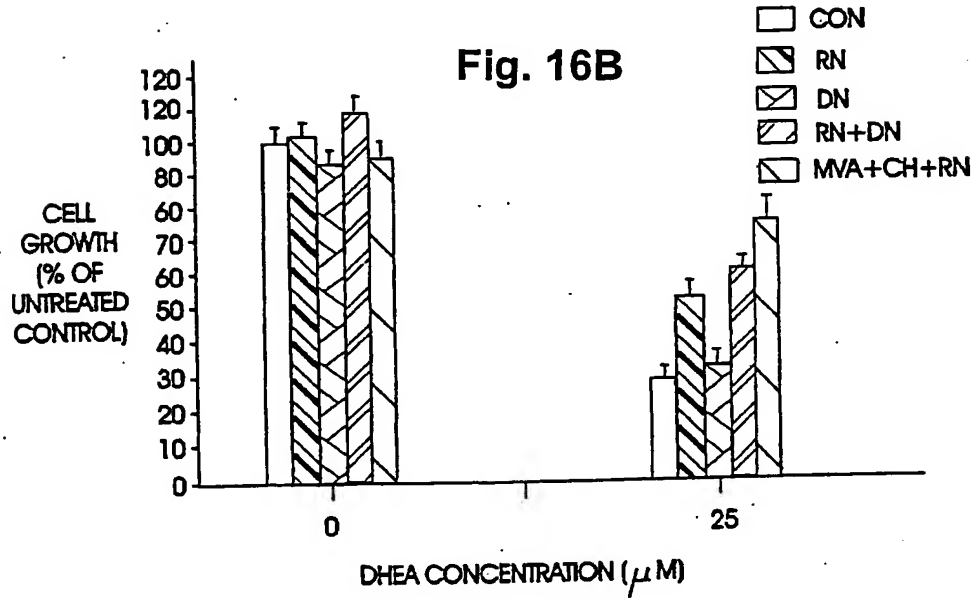
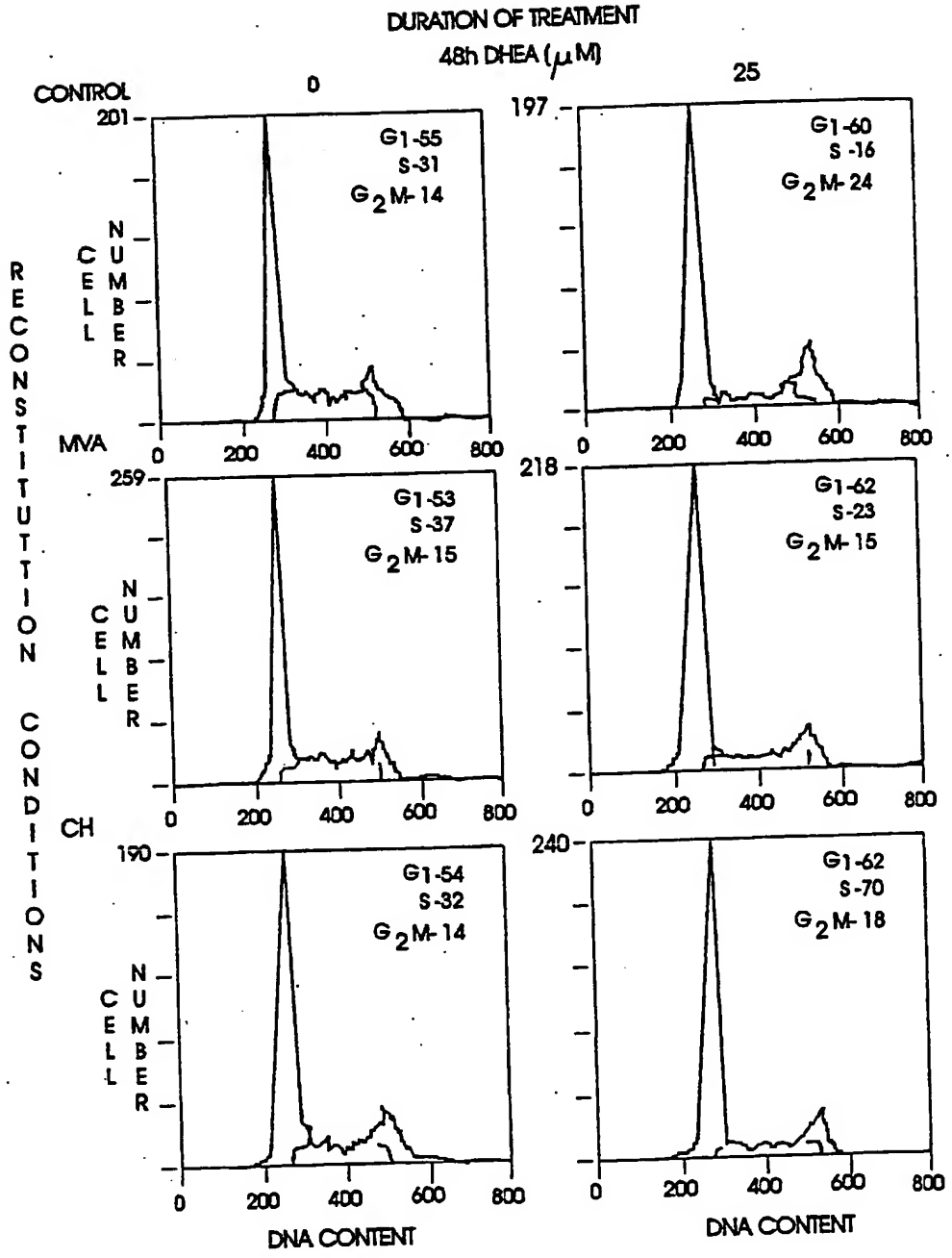


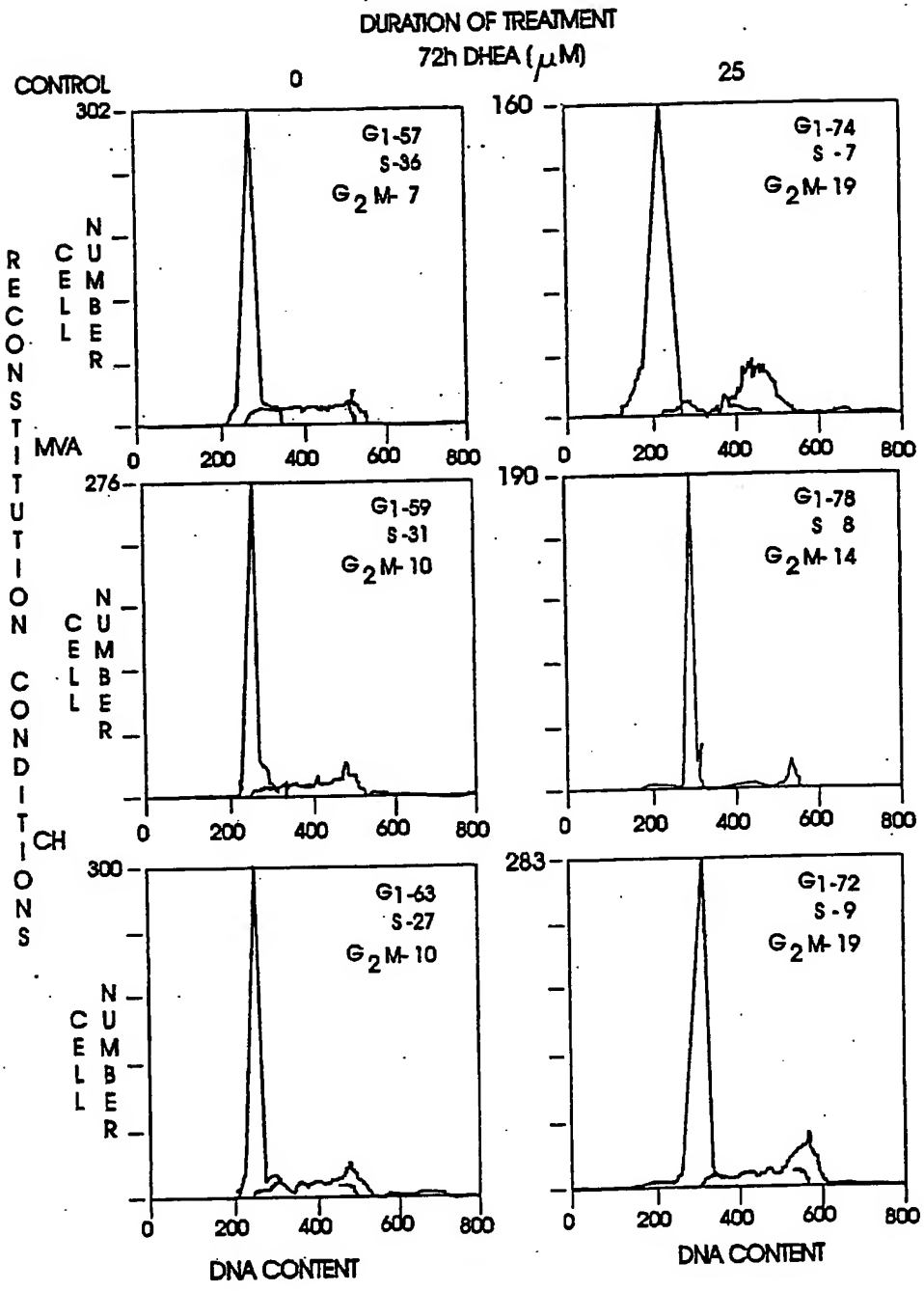

Fig. 16B



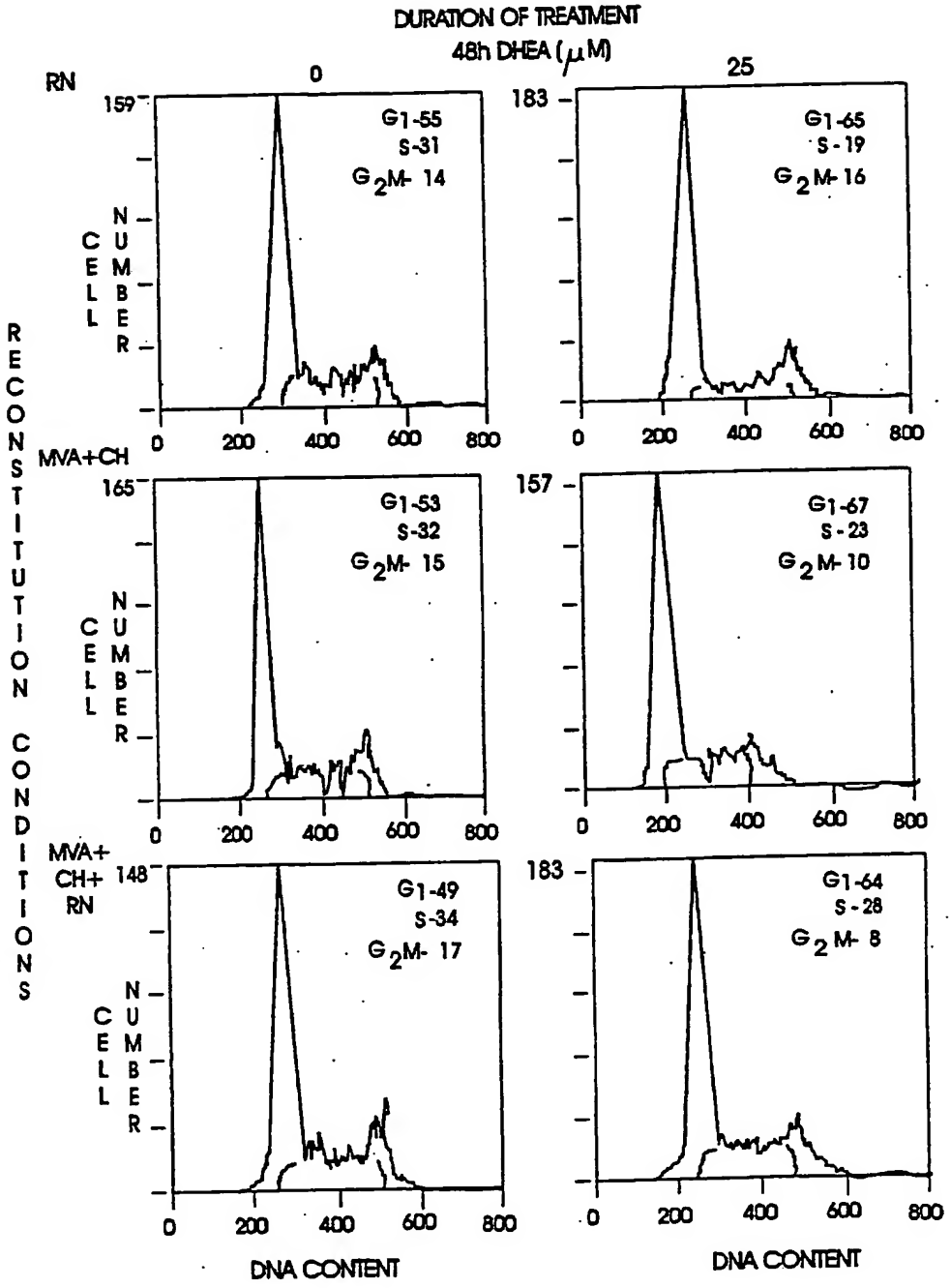
# Fig. 17A


DURATION OF TREATMENT
48h DHEA (μM)
0
25
CONTROL
MVA
CH
RECONSTITUTION CONDITIONS
CELL NUMBER
201
197
259
218
190
240
G1-55
S-31
G2M-14
G1-60
S-16
G2M-24
G1-53
S-37
G2M-15
G1-62
S-23
G2M-15
G1-54
S-32
G2M-14
G1-62
S-70
G2M-18
0
200
400
600
800
DNA CONTENT

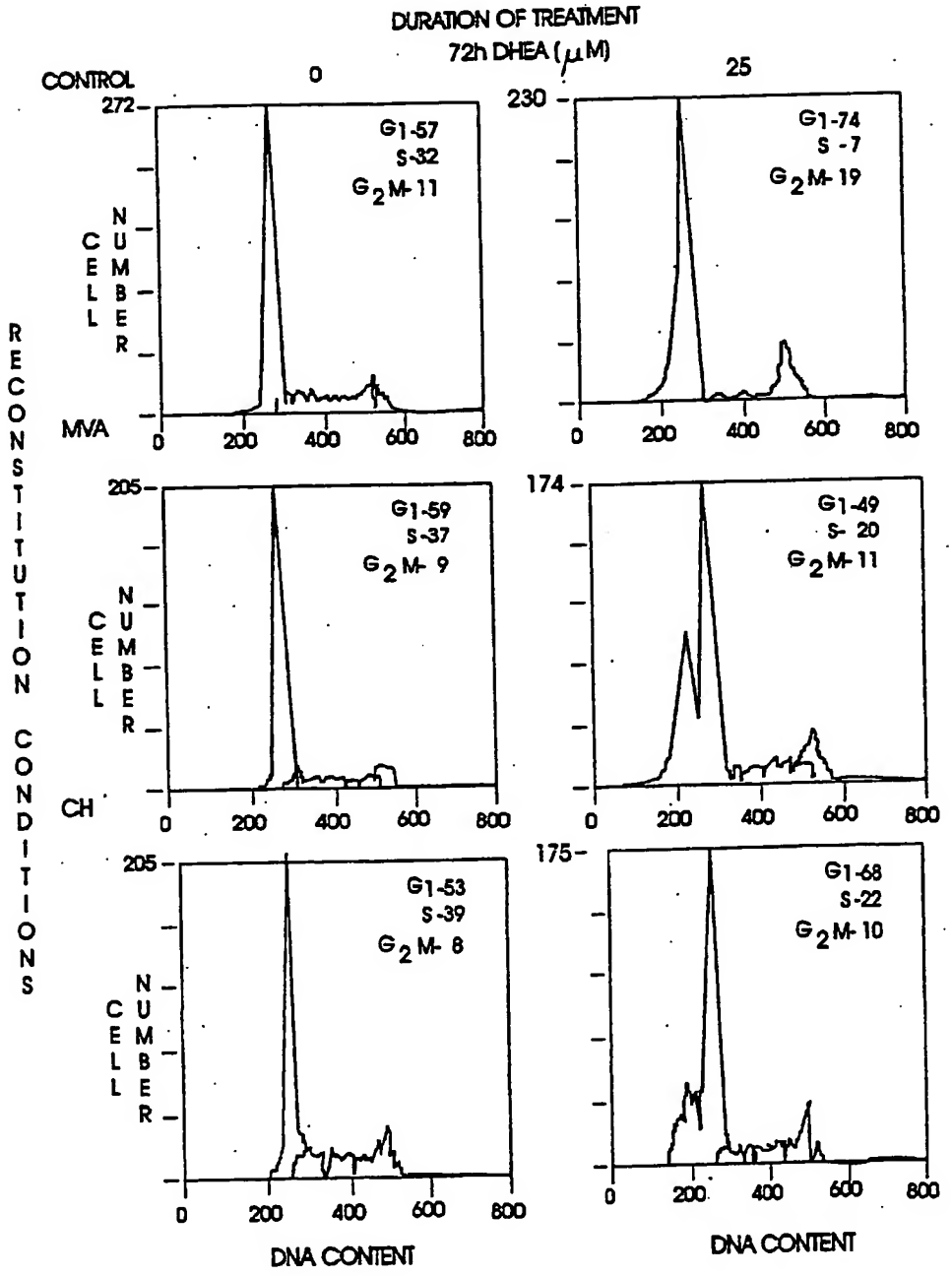
# Fig. 17B


DURATION OF TREATMENT
72h DHEA (μM)
CONTROL
0
25
RECONSTITUTION CONDITIONS
CELL NUMBER
MVA
CH
302
160
276
190
300
283
G1-57
S-36
G2M-7
G1-74
S-7
G2M-19
G1-59
S-31
G2M-10
G1-78
S 8
G2M-14
G1-63
S-27
G2M-10
G1-72
S-9
G2M-19
0
200
400
600
800
DNA CONTENT

# Fig. 17C


DURATION OF TREATMENT
48h DHEA (μM)
0
25
RN
MVA+CH
MVA+ CH+ RN
RECONSTITUTION CONDITIONS
CELL NUMBER
159
183
165
157
148
183
G1-55 S-31 G2M- 14
G1-65 S-19 G2M-16
G1-53 S-32 G2M- 15
G1-67 S-23 G2M-10
G1-49 S-34 G2M- 17
G1-64 S-28 G2M- 8
0
200
400
600
800
DNA CONTENT

# Fig. 17D


DURATION OF TREATMENT
72h DHEA (μM)
CONTROL
0
25
RECONSTITUTION CONDITIONS
MVA
CH
CELL NUMBER
272
230
205
174
205
175
G1-57
S-32
G2M-11
G1-74
S-7
G2M-19
G1-59
S-37
G2M-9
G1-49
S-20
G2M-11
G1-53
S-39
G2M-8
G1-68
S-22
G2M-10
0
200
400
600
800
DNA CONTENT

LIGHT CHAIN

```
                10        20        30        40
e27     DIQLTQSPSS LSASVGDRVT ITCRASKEVD GEGDSYMNWY
e26     DIQLTQSPSS LSASVGDRVT ITCRASKEVD GEGDSYMNWY
e426    DIQLTQSPSS LSASVGDRVT ITCRASQSVD YEGDSYMNWY
e25     DIQLTQSPSS LSASVGDRVT ITCRASQSVD YDGDSYMNWY
                                    CDR-L1

                50        60        70        80
e27     QQKPGKAPKL LIYAASYLES GVPSRFSGSG SGTDFTLTIS
e26     QQKPGKAPKL LIYAASYLES GVPSRFSGSG SGTDFTLTIS
e426    QQKPGKAPKL LIYAASYLES GVPSRFSGSG SGTDFTLTIS
e25     QQKPGKAPKL LIYAASYLES GVPSRFSGSG SGTDFTLTIS
                   CDR-L2

                90        100       110
e27     SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTV
e26     SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTV
e426    SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTV
e25     SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTV
                   CDR-L3
```

HEAVY CHAIN

```
                10        20        30        40
e27     EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ
e26     EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ
e426    EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ
e25     EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ
                                    CDR-H1

                50        60        70        80
e27     APGKGLEWVA SIEYSGETWY NPSVKGRITI SRDDSKNTFY
e26     APGKGLEWVA SITYDGSTNY NPSVKGRITI SRDDSKNTFY
e426    APGKGLEWVA SITYDGSTNY NPSVKGRITI SRDDSKNTFY
e25     APGKGLEWVA SITYDGSTNY NPSVKGRITI SRDDSKNTFY
                   CDR-H2

                90        100       110
e27     LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQG
e26     LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQG
e426    LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQG
e25     LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQG
                   CDR-H3
```

Fig. 18

(E25) - LIGHT CHAIN

DIQLTQSPSS LSASVGDRVT ITCRASQSVD YDGDSYMNWY QQKPGKAPKL LIYAASYLES GVPSRFSGSG
SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF IFPPSDEQLK SGTASVVCLL
NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS STLTLSKADY EKHKVYACEV THQGLSSPVT
KSFNRGEC

(E25) - HEAVY CHAIN

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SITYDGSTNY NPSVKGRITI
SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS SASTKGPSVF PLAPSSKSTS
GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP
SNTKVDKKVE PKSCDKTHTC PPCPAPELLG GPSVFLFPPK PKDTLMISRT PEVTCVVVDV SHEDPEVKFN
WYVDGVEVHN AKTKPREEQY NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK ALPAPIEKTI SKAKGQPREP
QVYTLPPSRE EMTKNQVSLT CLVKGFYPSD IAVEWESNGQ PENNYKTTPP VLDSDGSFFL YSKLTVDKSR
WQQGNVFSCS VMHEALHNHY TQKSLSLSPG K

(E26) - LIGHT CHAIN

DIQLTQSPSS LSASVGDRVT ITCRASKPVD GEGDSYMNWY QQKPGKAPKL LIYAASYLES GVPSRFSGSG
SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF IFPPSDEQLK SGTASVVCLL
NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS STLTLSKADY EKHKVYACEV THQGLSSPVT
KSFNRGEC

(E26) - HEAVY CHAIN

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SITYDGSTNY NPSVKGRITI
SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS SASTKGPSVF PLAPSSKSTS
GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP
SNTKVDKKVE PKSCDKTHTC PPCPAPELLG GPSVFLFPPK PKDTLMISRT PEVTCVVVDV SHEDPEVKFN
WYVDGVEVHN AKTKPREEQY NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK ALPAPIEKTI SKAKGQPREP
QVYTLPPSRE EMTKNQVSLT CLVKGFYPSD IAVEWESNGQ PENNYKTTPP VLDSDGSFFL YSKLTVDKSR
WQQGNVFSCS VMHEALHNHY TQKSLSLSPG K

(E27) - LIGHT CHAIN

DIQLTQSPSS LSASVGDRVT ITCRASKPVD GEGDSYMNWY QQKPGKAPKL LIYAASYLES GVPSRFSGSG
SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF IFPPSDEQLK SGTASVVCLL
NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS STLTLSKADY EKHKVYACEV THQGLSSPVT
KSFNRGEC

(E27) - HEAVY CHAIN

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SIKYSGETKY NPSVKGRITI
SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS SASTKGPSVF PLAPSSKSTS
GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP
SNTKVDKKVE PKSCDKTHTC PPCPAPELLG GPSVFLFPPK PKDTLMISRT PEVTCVVVDV SHEDPEVKFN
WYVDGVEVHN AKTKPREEQY NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK ALPAPIEKTI SKAKGQPREP
QVYTLPPSRE EMTKNQVSLT CLVKGFYPSD IAVEWESNGQ PENNYKTTPP VLDSDGSFFL YSKLTVDKSR
WQQGNVFSCS VMHEALHNHY TQKSLSLSPG K

Fig. 19

LIGHT CHAIN

E26

DIQLTQSPSS LSASVGDRVT ITCRASKPVD GEGDSYLNWY QQKPGKAPKL LIYAASYLES
GVPSRFSGSG SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF
IFPPSDEQLK SGTASVVCLL NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS
STLTLSKADY EKHKVYACEV THQGLSSPVT KSFNRGEC

E27

DIQLTQSPSS LSASVGDRVT ITCRASKPVD GEGDSYLNWY QQKPGKAPKL LIYAASYLES
GVPSRFSGSG SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF
IFPPSDEQLK SGTASVVCLL NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS
STLTLSKADY EKHKVYACEV THQGLSSPVT KSFNRGEC

HEAVY CHAIN

E26

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SITYDGSTNY
NPSVKGRITI SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS
SASTKGPSVF PLAPSSKSTS GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS
SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP SNTKVDKKVE PKSCDKTHT

E27

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SIKYSGETKY
NPSVKGRITI SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS
SASTKGPSVF PLAPSSKSTS GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS
SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP SNTKVDKKVE PKSCDKTHT

Fig. 20

E26

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SITYDGSTNY
NPSVKGRITI SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS
SEGGGSEGGG SEGGGSDIQL TQSPSSLSAS VGDRVTITCR ASKPVDGEGD SYLNWYQQKP
GKAPKLLIYA ASYLESGVPS RFSGSGSGTD FTLTISSLQP EDFATYYCQQ SHEDPYTFGQ
GTKVEIKR

E27

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SIKYSGETKY
NPSVKGRITI SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS
SEGGGSEGGG SEGGGSDIQL TQSPSSLSAS VGDRVTITCR ASKPVDGEGD SYLNWYQQKP
GKAPKLLIYA ASYLESGVPS RFSGSGSGTD FTLTISSLQP EDFATYYCQQ SHEDPYTFGQ
GTKVEIKR

Fig. 21

## LIGHT CHAIN

### E26

DIQLTQSPSS LSASVGDRVT ITCRASKPVD GEGDSYLNWY QQKPGKAPKL LIYAASYLES
GVPSRFSGSG SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF
IFPPSDEQLK SGTASVVCLL NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS
STLTLSKADY EKHKVYACEV THQGLSSPVT KSFNRGEC

### E27

DIQLTQSPSS LSASVGDRVT ITCRASKPVD GEGDSYLNWY QQKPGKAPKL LIYAASYLES
GVPSRFSGSG SGTDFTLTIS SLQPEDFATY YCQQSHEDPY TFGQGTKVEI KRTVAAPSVF
IFPPSDEQLK SGTASVVCLL NNFYPREAKV QWKVDNALQS GNSQESVTEQ DSKDSTYSLS
STLTLSKADY EKHKVYACEV THQGLSSPVT KSFNRGEC

## HEAVY CHAIN

### E26

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SITYDGSTNY
NPSVKGRITI SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS
SASTKGPSVF PLAPSSKSTS GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS
SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP SNTKVDKKVE PKSCDKTHTC PPC

### E27

EVQLVESGGG LVQPGGSLRL SCAVSGYSIT SGYSWNWIRQ APGKGLEWVA SIKYSGETKY
NPSVKGRITI SRDDSKNTFY LQMNSLRAED TAVYYCARGS HYFGHWHFAV WGQGTLVTVS
SASTKGPSVF PLAPSSKSTS GGTAALGCLV KDYFPEPVTV SWNSGALTSG VHTFPAVLQS
SGLYSLSSVV TVPSSSLGTQ TYICNVNHKP SNTKVDKKVE PKSCDKTHTC PPC

**Fig. 22**